REMARKS

The Office Action dated September 10, 2007 has been received and carefully noted. The following remarks are submitted as a full and complete response thereto.

The Applicant wishes to thank the Examiner for the allowance of claims 19-21, 29-34, and 36-38.

Claims 1-38 are currently pending in the application and are respectfully submitted for consideration.

REJECTION UNDER 35 U.S.C. § 103:

On page 7 of the Office Action, claims 1-2, 4-7, 11, 22-25, and 35 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,418,173 to Matsuoka et al. ("Matsuoka") in view of U.S. Publication No. 20030063682 to Shearer, III ("Shearer"). The Office Action took the position that Matsuoka discloses: all the limitations of independent claim 1 except for generating a limited transmissible signal by reducing an error signal filtered using the filter matched to a chip pulse waveform from the transmissible signal (page 7); all the limitations of independent claim 2 except for where the filter is a pulse shaping filter (page 8); all the limitations of independent claim 35 except for generating a limited transmissible signal by reducing the error signal filtered using the filter matched to a chip pulse waveform from the transmissible signal (page 10); and all the limitations of dependent claims 4-7, 11, and 22-25 (pages 9-10).

The Office Action took the position that Shearer cures the deficiencies in Matsuoka (pages 7-9). Applicant respectfully traverses the rejection.

Independent claim 1, upon which claims 4-10 are dependent, recites a method for limiting a signal in a transmitter at chip level, the method including determining a limiting signal from a transmissible signal filtered using a pulse shaping filter, determining an error signal using the transmissible signal and the limiting signal, and generating a limited transmissible signal by reducing an error signal filtered using the filter matched to a chip pulse waveform from the transmissible signal.

Independent claim 2, upon which claims 11-14 are dependent, recites a method for limiting a signal in a transmitter at chip level, the method including determining a limiting signal from a transmissible signal filtered using a pulse shaping filter, determining an error signal using the transmissible signal and the limiting signal, orthogonalizing the error signal filtered using the filter matched to a chip pulse waveform, and generating a limited transmissible signal by reducing the orthogonalized error signal from the transmissible signal.

Independent claim 35, upon which claims 22-28 are dependent, recites a transmitter limiting a signal at chip level, the transmitter being configured to determine a limiting signal from a transmissible signal filtered using a pulse shaping filter, determine an error signal using the transmissible signal and the limiting signal, generate a limited transmissible signal by reducing the error signal filtered using the filter matched to a chip

pulse waveform from the transmissible signal, and filter the limited transmissible signal using the pulse shaping filter.

As will be discussed below, Matsuoka and Shearer, combined or separately, fail to disclose or suggest the elements of any of the presently pending claims.

Matsuoka generally describes a nonlinear distortion compensating technique in a transmission apparatus for digital radio communications. Amplitude limiting section 103 limits the amplitude of transmission signal 113 in accordance with the amplitude limiting coefficient 115 and outputs an amplitude limiting signal 116 thus obtained. See column 5, lines 12-37. Nonlinear distortion compensating section 104 compensates nonlinear distortions of amplifier 109 almost as in the description with reference to FIG. 10 in the conventional example. That is, the second amplitude calculating section 105 calculates limiting amplitude information 117 from amplitude limiting signal 116 and outputs it. Compensation table 106 outputs distortion compensation coefficient 118 in response to limiting amplitude information 117. Distortion compensating section 107 calculates distortion compensation signal 119 on the basis of distortion compensation coefficient 118 and amplitude limiting signal 119.

Shearer generally describes a constrained-envelope digital communications transmitter which places constraints on the envelope of a spectrally constrained, digitally modulated communication signal to lower peak-to-average power ratio without allowing significant spectral regrowth. Shearer generally describes using a pulse-shaped filter to shape and spread the information conveyed in each unit interval of modulated data over

many unit intervals in a manner that dramatically reduces the spectrum required to transmit the information but permits efficient recovery of the information without significant intersymbol interference.

Contrary to the contentions made in the Office Action, Applicant respectfully asserts that Matsuoka fails to teach or suggest all the recitations of independent claims 1-2, and 35. For instance, Matsuoka fails to teach or suggest, at least, determining or determine "an error signal using the transmissible signal and the limiting signal," as recited in independent claims 1-2, and 35. As argued in a previous response, dated July 9, 2007 ("Previous Response"), the distortion compensating section 107 of Matsuoka does not determine an error signal using the transmission signal 113 and the amplitude limiting signal 116. Rather, the distortion compensating section 107 generates a distortion compensation signal 119 based on the amplitude limiting signal 116 and a distortion compensation coefficient 118. The distortion compensating section 107 **does not use the transmission signal 113** to generate the distortion compensation signal 119.

On page 3, the Office Action stated that the distortion compensating section 107 does use the transmission signal 113 to generate the distortion compensation signal 119 because the distortion compensating section 107 uses amplitude limiting signal 116 to generate the distortion signal, amplitude limiting signal 116 is obtained from transmission signal 113, and thus, that the distortion compensation signal is indirectly generated from the transmission signal as well as the amplitude limiting signal. Applicant respectfully asserts that that is incorrect. Independent claim 1 recites that the method determines a

limiting signal from a transmissible signal and then further recites that the method determines an error signal using **both** the original transmissible signal and the limiting signal generated from the original transmissible signal. Independent claims 2 and 35 recite similar limitations. Thus, the distortion compensating section 107 of Matsuoka does not use the original transmission signal 113 to generate the distortion compensation signal 119.

Furthermore, as argued in the Previous Response, the distortion compensating section 107 of Matsuoka does not generate an error signal. Rather, the distortion compensating section 107 generates a distortion compensation signal 119, which is later used by a quadrature modulating section 108 to modulate to radio frequency (RF) signals, which are signals 119 of carrier band. See column 5, lines 33-37. On page 3, the Office Action stated that the distortion compensation section 107 generates a distortion compensation signal 119; that it is well known in the art that distortion is synonymous with error; and that the distortion compensation signal is the same as an error signal. Applicant respectfully disagrees. As previously stated, the distortion compensation signal 119 is later used by a quadrature modulating section 108 to modulate RF signals. The error signal in the method in claim 1, and in similar limitation of claims 2 and 35 is not used subsequently to modulate RF signals. Thus, Applicant respectfully asserts that the distortion compensation signal in Matsuoka is not the same as the error signal in claims 1, 2 and 35.

For these reasons, Applicant respectfully asserts that Matsuoka does not disclose, teach or suggest, at least, determining or determine "an error signal using the transmissible signal and the limiting signal," as recited in independent claims 1-2, and 35.

Additionally, Matsuoka fails to teach or suggest, at least, determining or determine "a limiting signal from a transmissible signal filtered using a pulse shaping filter," as recited in independent claims 1-2, and 35. The amplitude limiting section 103 limits the amplitude of transmission signal 113 in accordance with the amplitude limiting coefficient 115 and outputs an amplitude limiting signal 116, as described at column 5, lines 13-16. The amplitude limiting section does not filter the signal using a pulse shaping filter. On page 8, the Office Action correctly recognizes that the amplitude limiting section does not filter the signal using a pulse shaping filter ("Matsuoka fails to teach where the filter is a pulse shaping filter"). Thus, Applicant respectfully asserts that Matsuoka does not disclose, teach or suggest, at least, determining or determine "a limiting signal from a transmissible signal filtered using a pulse shaping filter," as recited in independent claims 1-2, and 35.

Furthermore, Matsuoka fails to teach or suggest, at least, generating or generate "a limited transmissible signal by reducing an [orthogonalized] error signal filtered using the filter matched to a chip pulse waveform from the transmissible signal," as recited in independent claims 1-2, and 35. As argued in the Previous Response, Matsuoka is devoid of any teaching or suggestion providing a reduction of an error signal filtered using the filter matched to a chip pulse waveform from the transmissible signal. On page

7, the Office Action correctly recognizes that Matsuoka does not teach or suggest providing a reduction of an error signal filter using the filter matched to a chip pulse waveform from the transmissible signal ("Matsuoka fails to teach generating a limited transmissible signal by reducing an error signal filtered using the filter matched to a chip pulse waveform from the transmissible signal"). Thus, Applicant respectfully asserts that Matsuoka does not disclose, teach or suggest, at least, generating or generate "a limited transmissible signal by reducing an error signal filtered using the filter matched to a chip pulse waveform from the transmissible signal," as recited in independent claims 1-2, and 35.

Applicant respectfully asserts that Shearer fails to cure the deficiencies of Matsuoka. As described above, Shearer generally describes using a pulse-shaped filter to shape and spread the information conveyed in each unit interval of modulated data over many unit intervals. However, Shearer fails to teach or suggest, at least, determining or determine "an error signal using the transmissible signal and the limiting signal;" determining or determine "a limiting signal from a transmissible signal filtered using a pulse shaping filter;" or generating or generate "a limited transmissible signal by reducing an [orthogonalized] error signal filtered using the filter matched to a chip pulse waveform from the transmissible signal," as recited in independent claims 1-2, and 35.

Thus, a combination of Matsuoka and Shearer would fail to teach or suggest all the recitations of independent claims 1-2 and 35. Accordingly, Applicant respectfully contends that a combination of Matsuoka and Shearer fails to teach or suggest all the

recitations of independent claims 1-2 and 35 and related dependent claims. It is respectfully requested that the claims be allowed.

On page 11 of the Office Action, claims 3, 15, and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuoka in view of U.S. Patent No. 6,144,694 to Uta et al. ("Uta") and further in view of Shearer. The Office Action took the position that Matsuoka discloses: all the limitations of independent claim 3 except for combining at least two signals modulated on different carriers to a combination signal and generating limited transmissible signals by reducing each error signal part filtered using the filter matched to a chip pulse waveform from a corresponding transmissible signal (pages 11-12); all the limitations of independent claim 18 except for means for filtering the limited transmissible signals using the pulse-shaping filter (page 12-13); and all the limitations of dependent claim 15 (page 12). The Office Action took the position that Shearer and Uta cures the deficiencies in Matsuoka (pages 11-13). Applicant respectfully traverses the rejection.

Independent claim 3, upon which claims 15-17 are dependent, recites a method for limiting a signal in a transmitter at chip level, the method including combining at least two signals modulated on different carriers to a combination signal, determining a limiting signal from the combination signal filtered using a pulse shaping filter, determining an error signal using the combination signal and the limiting signal, dividing the error signal onto different carriers in a predetermined manner, and generating limited

transmissible signals by reducing each error signal part filtered using the filter matched to a chip pulse waveform from a corresponding transmissible signal.

Independent claim 18 recites a transmitter limiting a signal at chip level, the transmitter including means for determining a limiting signal from a transmissible signal filtered using a pulse shaping filter, means for determining an error signal using the transmissible signal and the limiting signal, means for generating a limited transmissible signal by reducing the error signal filtered using the filter matched to a chip pulse waveform from the transmissible signal, and means for filtering the limited transmissible signal using the pulse shaping filter.

As will be discussed below, Matsuoka, Shearer, and Uta, combined or separately, fail to disclose or suggest the elements of any of the presently pending claims.

The descriptions of Matsuoka and Shearer discussed above are incorporated herein. Uta generally describes a transmitting apparatus for code division multiplexed signals capable of reducing the transmission back-off without creating a spurious. See column 2, lines 15-18. FIG. 8 of Uta describes a conventional transmitting apparatus used for the spread spectrum communication and has a transmitter section designed such that transmission information 11-*i* of multiple channels are scrambled so that the multiplexed signal 21 resulting from the composition of the multiple channels has characteristics close to the white noise as shown in FIG. 8.

Matsuoka fails to teach or suggest, at least, generating "limited transmissible signals by reducing each error signal part filtered using the filter matched to a chip pulse

waveform from a corresponding transmissible signal," as recited in independent claim 3, for similar reasons that Matsuoka does not disclose, teach, or suggest generating "a limited transmissible signal by reducing an error signal filtered using the filter matched to a chip pulse waveform from the transmissible signal," as argued above.

Additionally, Matsuoka fails to teach or suggest, at least, combining "at least two signals modulated on different carriers to a combination signal," determining "a limiting signal from the combination signal filtered using a pulse shaping filter," or determining "an error signal using the combination signal and the limiting signal," as recited in independent claim 3. On page 8 of the Office Action, it is correctly recognized that Matsuoka fails to teach or suggest, combining "at least two signals modulated on different carriers to a combination signal," as recited in independent claim 3. As argued in the Previous Response, if the combination of at least two signals modulated on different carriers is not described in Matsuoka, then Matsuoka cannot teach or suggest, determining "a limiting signal from the combination signal filtered using a pulse shaping filter." This is because the distortion compensating section 107 of Matsuoka cannot determine a limiting signal from a combination signal filtered when Matsuoka is silent as to providing the combination signal in the first place. Likewise, Matsuoka cannot teach or suggest, determining "an error signal using the combination signal and the limiting signal" because Matsuoka is silent to providing the combination signal in the first place. Thus, Applicant respectfully asserts that Matsuoka does not disclose, teach or suggest, at least, combining "at least two signals modulated on different carriers to a combination

signal," determining "a limiting signal from the combination signal filtered using a pulse shaping filter," or determining "an error signal using the combination signal and the limiting signal," as recited in independent claim 3.

Furthermore, Matsuoka fails to teach or suggest, at least, dividing "the error signal onto different carriers in a predetermined manner," as recited in independent claim 3. Matsuoka discloses that the quadrature modulating section 108 modulates distortion compensation signals 119 to radio frequency signals 120. The Office Action at page 11, states that this modulation discloses a method comprising dividing the error signal onto different carriers in a predetermined manner. Applicant respectfully asserts that the discussion of modulating distortion compensation signals to radio frequency signals does not disclose, teach, or suggest dividing an error signal onto different carriers in a predetermined manner. Matsuoka is silent as to whether its modulation of distortion compensation signals involves any division of an error signal onto different carriers, and is silent as to whether the modulation is carried out in a predetermined manner or not. Thus, Applicant respectfully asserts that Matsuoka does not disclose, teach or suggest, at least, dividing "the error signal onto different carriers in a predetermined manner" as recited in independent claim 3.

With respect to independent claim 18, Applicant respectfully asserts that Matsuoka fails to teach or suggest all the recitations of independent claim 18, for similar reasons why Matsuoka fails to teach or suggest all the recitations of independent claim 1.

Applicant respectfully asserts that Shearer fails to cure the deficiencies of Matsuoka. As described above, Shearer generally describes using a pulse-shaped filter to shape and spread the information conveyed in each unit interval of modulated data over many unit intervals. However, Shearer fails to teach or suggest, at least, generating "limited transmissible signals by reducing each error signal part filtered using the filter matched to a chip pulse waveform from a corresponding transmissible signal;" combining "at least two signals modulated on different carriers to a combination signal;" determining "a limiting signal from the combination signal filtered using a pulse shaping filter;" determining "an error signal using the combination signal and the limiting signal;" or dividing "the error signal onto different carriers in a predetermined manner," as recited in independent claim 3. With respect to independent claim 18, Applicant respectfully asserts that Shearer fails to teach or suggest all the recitations of independent claim 18, and thus, fails to cure Matsuoka's deficiencies, for similar reasons why Shearer fails to teach or suggest all the recitations of independent claim 1.

Applicant respectfully asserts that Uta fails to cure the deficiencies of Matsuoka and Shearer. FIG. 8 of Uta describes a conventional transmitting apparatus used for the spread spectrum communication and has a transmitter section designed such that transmission information 11-*i* of multiple channels are scrambled so that the multiplexed signal 21 resulting from the composition of the multiple channels has characteristics close to the white noise as shown in FIG. 8. On page 4, the Office Action alleged that "multiplexing of two signals modulated on different carriers to a combination signal ...

would be beneficial if used in lieu of the limiting signal 116 in fig. 1 of Matsuoka." However, as argued in the Previous Response, even if Uta describes a combination of at least two signals modulated on different carriers to a combination signal, *not admitted*, Uta, like Matsuoka, and Shearer, does not teach or suggest that the transmission apparatus determines "a limiting signal from the combination signal filtered using a pulse shaping filter," as recited in independent claim 3 and similarly recited in independent claim 18. Furthermore, Matsuoka, Shearer, and Uta also fail to teach or suggest, at least, "generating limited transmissible signals by reducing each error signal part filtered using the filter matched to a chip pulse waveform from a corresponding transmissible signal." Thus, a combination of Matsuoka, Shearer, and Uta would fail to teach or suggest all the recitations of independent claims 3 and 18.

Furthermore, Applicant submits that neither Matsuoka, nor Shearer, describes that providing a signal that is similar to white noise so that the signals of all channels would have less chance of having the same value simultaneously, as submitted in Uta, would allow to easily improve the efficiency of amplification section. As previously set forth, Matsuoka does not determine a limiting signal from the combination signal filtered using a pulse shaping filter as recited in the present claims. Rather, Matsuoka provides that the distortion compensating section 107 generates a distortion compensation signal 119 based on the amplitude limiting signal 116 and a distortion compensation coefficient 118. There is no description or suggestion in Matsuoka, nor Shearer, of a need to multiplex signals so that the signals of all channels would have less chance of having the same

value simultaneously, as submitted in Uta. As such, one skilled in the art would not be motivated to modify Matsuoka, or Shearer, with Uta.

Thus, a combination of Matsuoka, Shearer, and Uta would fail to teach or suggest all the recitations of independent claims 3 and 18. Accordingly, Applicant respectfully contends that a combination of Matsuoka, Shearer, and Uta fails to teach or suggest all the recitations of independent claims 3, and 18 and related dependent claims. It is respectfully requested that the claims be allowed.

On page 13 of the Office Action, claims 8-9, and 26-27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuoka and Shearer and further in view of U.S. Publication No. 20030219079 to Piirainen et al. ("Piirainen"). The Office Action took the position that Matsuoka and Shearer disclose: all the limitations of dependent claim 8 except for the threshold value being set bearing in mind the maximum value predetermined for an error vector magnitude (page 13); all the limitations of dependent claim 9 except for the threshold value being set bearing in mind the maximum value predetermined for a peak code domain error; all the limitations of dependent claim 26 except for the threshold value being set bearing in mind the maximum value predetermined for an error vector magnitude (page 15); and all the limitations of dependent claim 27 except for the threshold value being set bearing in mind the maximum value predetermined for a peak code domain error (page 15). The Office

Action took the position that Piirainen cures the deficiencies in Matsuoka and Shearer (pages 13-15). Applicant respectfully traverses the rejection.

Dependent claims 8-9 and 26-27 depend from independent claims 1 and 35, respectively.

As will be discussed below, Matsuoka, Shearer, and Piirainen, combined or separately, fail to disclose or suggest the elements of any of the presently pending claims.

Because the combination of Matsuoka, Shearer, and Piirainen must teach, individually or combined, all the recitations of the base claim and any intervening claims of dependent claims 8-9 and 26-27, the arguments presented above supporting the patentability of independent claims 1 and 35 over Matsuoka and Shearer are incorporated herein.

Piirainen generally describes a method for restricting a signal in a radio transmitter. The method includes setting a threshold value and a value sample interval for the signal, searching the modulated signal for maximum values exceeding the threshold value, determining the instant of occurrence of the maximum value that exceeded the threshold value, searching the modulated signal for additional sample values exceeding the threshold value at a distance of one or more value sample intervals from the moment of occurrence of at least one maximum value, forming a signal that represents the part of the modulated signal that exceeds the threshold value, and subtracting from the modulated signal the formed signal representing the part that exceeds the threshold value.

As discussed above, Matsuoka and Shearer do not disclose or suggest all of the elements of independent claims 1 and 35. Additionally, Pirrainen does not cure the deficiencies in Matsuoka and Shearer, as Pirrainen also fails to disclose or suggest, at least, determining or determine "an error signal using the transmissible signal and the limiting signal;" determining or determine "a limiting signal from a transmissible signal filtered using a pulse shaping filter;" or generating or generate "a limited transmissible signal by reducing an error signal filtered using the filter matched to a chip pulse waveform from the transmissible signal." Consequently, the combination of Matsuoka, Shearer, and Pirrainen fails to disclose or suggest all of the elements of independent claims 1 and 35.

In addition, claims 8-9 and 26-27 should be allowed for at least its dependence upon independent claims 1 and 35, and for the specific limitations recited therein. It is respectfully requested that the claims be allowed.

On page 15 of the Office Action, claims 10, and 28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuoka and Shearer and further in view of U.S. Publication No. 2002011427 to Pierzga et al. ("Pierzga"). The Office Action took the position that Matsuoka and Shearer disclose: all the limitations of dependent claim 10 except for the threshold value being set so as to obtain the desired Peak-to-Mean Ratio, Peak-to-Average Ratio, Crest factor of the power or amplitude (page 15); and all the limitations of dependent claim 28 except for the threshold value being set so as to obtain

the desired Peak-to-Mean Ratio, Peak-to-Average Ratio, Crest factor of the power or amplitude (page 16). The Office Action took the position that Pierzga cures the deficiencies in Matsuoka and Shearer (pages 15-16). Applicant respectfully traverses the rejection.

Dependent claims 10 and 28 depend from independent claims 1 and 35, respectively.

As will be discussed below, Matsuoka, Shearer, and Pierzga, combined or separately, fail to disclose or suggest the elements of any of the presently pending claims.

Because the combination of Matsuoka, Shearer, and Pierzga must teach, individually or combined, all the recitations of the base claim and any intervening claims of dependent claims 10 and 28, the arguments presented above supporting the patentability of independent claims 1 and 35 over Matsuoka and Shearer are incorporated herein.

Pierzga generally describes an OFDM communication system which includes broadcast providers, each stations, repeater satellites and receivers. Pierzga discloses that two channels are provided, on the in phase and quadrature components of each subcarrier.

As discussed above, Matsuoka and Shearer do not disclose or suggest all of the elements of independent claims 1 and 35. Additionally, Pierzga does not cure the deficiencies in Matsuoka and Shearer, as Pierzga also fails to disclose or suggest, at least, determining or determine "an error signal using the transmissible signal and the limiting

signal;" determining or determine "a limiting signal from a transmissible signal filtered using a pulse shaping filter;" or generating or generate "a limited transmissible signal by reducing an error signal filtered using the filter matched to a chip pulse waveform from the transmissible signal." Consequently, the combination of Matsuoka, Shearer, and Pierzga fails to disclose or suggest all of the elements of independent claims 1 and 35.

In addition, claims 10 and 28 should be allowed for at least its dependence upon independent claims 1 and 35, and for the specific limitations recited therein. It is respectfully requested that the claims be allowed.

On page 16 of the Office Action, claim 13 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuoka and Shearer and further in view of U.S. Patent No. 7,110,434 to Currivan et al. ("Currivan"). The Office Action took the position that Matsuoka and Shearer disclose all the limitations of claim 13 except a method wherein unused codes are utilized in orthogonalization (page 16). The Office Action took the position that Currivan cures the deficiencies in Matsuoka and Shearer (pages 16-17). Applicant respectfully traverses the rejection.

Dependent claim 13 depends from independent claim 2.

As will be discussed below, Matsuoka, Shearer, and Currivan, combined or separately, fail to disclose or suggest the elements of any of the presently pending claims.

Because the combination of Matsuoka, Shearer, and Currivan must teach, individually or combined, all the recitations of the base claim and any intervening claims

of dependent claim 13, the arguments presented above supporting the patentability of independent claim 2 over Matsuoka and Shearer are incorporated herein.

Currivan generally describes a method and apparatus for performing weighted linear combination selectively with each of the input spread signals in a multiple access communication system. The predetermined number of unused codes is always the same in each implementation. Alternatively, the predetermined number of unused codes is selected from within a reordered code matrix using knowledge that is shared between the two ends of a communication system, such as between the CMs and a CMTS.

As discussed above, Matsuoka and Shearer do not disclose or suggest all of the elements of independent claim 2. Additionally, Currivan does not cure the deficiencies in Matsuoka and Shearer, as Currivan also fails to disclose or suggest, at least, determining "an error signal using the transmissible signal and the limiting signal;" determining "a limiting signal from a transmissible signal filtered using a pulse shaping filter;" or generating "a limited transmissible signal by reducing the orthogonalized error from the transmissible signal." Consequently, the combination of Matsuoka, Shearer, and Currivan fails to disclose or suggest all of the elements of independent claim 2.

In addition, claim 13 should be allowed for at least its dependence upon independent claim 2, and for the specific limitations recited therein. It is respectfully requested that the claims be allowed.

On page 17 of the Office Action, claim 14 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuoka and Shearer and further in view of U.S. Patent No. 5,602,833 to Zehavi ("Zehavi"). The Office Action took the position that Matsuoka and Shearer disclose all the limitations of claim 14 except a method wherein codes used at a lower modulation level are utilized in orthogonalization (page 17). The Office Action took the position that Zehavi cures the deficiencies in Matsuoka and Shearer (page 17). Applicant respectfully traverses the rejection.

Dependent claim 14 depends from independent claim 2.

As will be discussed below, Matsuoka, Shearer, and Zehavi, combined or separately, fail to disclose or suggest the elements of any of the presently pending claims.

Because the combination of Matsuoka, Shearer, and Zehavi must teach, individually or combined, all the recitations of the base claim and any intervening claims of dependent claim 14, the arguments presented above supporting the patentability of independent claim 2 over Matsuoka and Shearer are incorporated herein.

Zehavi generally describes a method and apparatus for generating orthogonally encoded communication signals for communication system subscribers using multiple orthogonal functions for each orthogonal communication channel. Digital data symbols for signal recipients are M-ary modulated using at least two n-length orthogonal modulation symbols. These symbols are provided by a modulation symbol selector (124) typically from one or more code generators (126, 128), and the modulation is such that M equals a product of a total number of orthogonal functions and the number used to

generate individual modulation symbols. Each group of log M encoded data symbols from data processing elements (100, 102) are mapped into one modulation symbol using the modulation symbol selection element (124) according to their binary values. The energy values are mapped into energy metric data using a dual maximum metric generation process. Each demodulator outputs M energy values representing each of the M mutually orthogonal modulation symbols, which are then combined into a single set of M energy values.

As discussed above, Matsuoka and Shearer do not disclose or suggest all of the elements of independent claim 2. Additionally, Zehavi does not cure the deficiencies in Matsuoka and Shearer, as Zehavi also fails to disclose or suggest, at least, determining "an error signal using the transmissible signal and the limiting signal;" determining "a limiting signal from a transmissible signal filtered using a pulse shaping filter;" or generating "a limited transmissible signal by reducing the orthogonalized error from the transmissible signal." Consequently, the combination of Matsuoka, Shearer, and Zehavi fails to disclose or suggest all of the elements of independent claim 2.

In addition, claim 14 should be allowed for at least its dependence upon independent claim 2, and for the specific limitations recited therein. It is respectfully requested that the claims be allowed.

On page 17 of the Office Action, claims 16-17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuoka, Uta, and Shearer and further in view of

U.S. Publication No. 20030001669 to Billsberry et al. ("Billsberry"). The Office Action took the position that Matsuoka, Shearer, and Uta disclose: all the limitations of claim 16 except a method wherein the error signal is divided equally between different carriers (pages 17-18); and all the limitations of claim 17 except a method wherein the error signal is divided between different carriers in relation to the power or amplitude values to be clipped (page 18). The Office Action took the position that Billsberry cures the deficiencies in Matsuoka and Shearer (pages 17-18). Applicant respectfully traverses the rejection.

Dependent claims 16-17 depend from independent claim 3.

As will be discussed below, Matsuoka, Uta, Shearer, and Billsberry, combined or separately, fail to disclose or suggest the elements of any of the presently pending claims.

Because the combination of Matsuoka, Uta, Shearer, and Billsberry must teach, individually or combined, all the recitations of the base claim and any intervening claims of dependent claims 16-17, the arguments presented above supporting the patentability of independent claim 3 over Matsuoka, Uta, and Shearer are incorporated herein.

Billsberry generally describes a method and apparatus for utilizing the distortion generated within a portion of a balanced amplifier to cancel the distortion generated within the whole balanced amplifier. Samples of the signal and distortion from part of the balanced amplifier are combined with a reference signal such that the two signals destructively combine leaving the distortion from the sampled part of the balanced amplifier. The gain and phase of the distortion is then adjusted so that when it is coupled

into the input of the other part of the balanced amplifier the distortion generated by both parts of the balanced amplifier is cancelled.

As discussed above, Matsuoka, Uta, and Shearer do not disclose or suggest all of the elements of independent claim 3. Additionally, Billsberry does not cure the deficiencies in Matsuoka, Uta, and Shearer, as Billsberry also fails to disclose or suggest, at least, generating "limited transmissible signals by reducing each error signal part filtered using the filter matched to a chip pulse waveform from a corresponding transmissible signal;" combining "at least two signals modulated on different carriers to a combination signal;" determining "a limiting signal from the combination signal filtered using a pulse shaping filter;" determining "an error signal using the combination signal and the limiting signal;" or dividing "the error signal onto different carriers in a predetermined manner." Consequently, the combination of Matsuoka, Uta, Shearer, and Billsberry fails to disclose or suggest all of the elements of independent claim 3.

In addition, claims 16-17 should be allowed for at least its dependence upon independent claim 3, and for the specific limitations recited therein. It is respectfully requested that the claims be allowed.

OBJECTION TO THE CLAIMS

On page 19 of the Office Action, claim 12 was objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant

asserts that it has not amended claim 12 to rewrite the claim in independent form including all of the limitations of the base claim and any intervening claims, because Applicant has addressed the formal rejections to independent claim 2, which claim 12 depends from, above. Accordingly, it is respectfully requested that the claims 2 and 12 be allowed.

CONCLUSION:

For at least the reasons discussed above, Applicant respectfully submits that the cited prior art references fail to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It is therefore respectfully requested that all of claims 1-18, 22-28, and 35 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

Majid AlBassam
Registration No. 54,749

Customer No. 32294
SQUIRE, SANDERS & DEMPSEY LLP
14TH Floor
8000 Towers Crescent Drive
Tysons Corner, Virginia 22182-2700
Telephone: 703-720-7800
Fax: 703-720-7802

KMM:dc:dlh

Enclosures: Petition for Extension of Time
Check No. 018255